

THESE RELICS OF BARBARISM
(1866-1880)

At the end of the Civil War, the administrative machinery was in place to provide better accommodations for the men of the Army. And certainly the desire to do so was also present. Quartermaster General Meigs believed that true economy lay in making the soldier comfortable, in order to improve his morale, health, and efficiency and prevent desertion (the Army's greatest headache in the 19th century). He promised General Sherman in 1866 that he would endeavor to offer better barrack accommodations than in previous years, voicing his intention to make dormitories, reading rooms, and mess rooms "more attractive than the sutler's shop and the groggery."¹

But where there was a will there was not necessarily a way. The Army's own procedures sometimes forestalled improvements in its living conditions. For instance, in 1866 Congress authorized the construction of schools and reading rooms at military posts. If no room was available for the purpose, the Quartermaster Department was authorized to erect a building, if the secretary of war approved. But the War Department interpreted the provision as not applying to temporary posts, a category that included all military posts in the West. Because of that interpretation, aggravated by low appropriations, no progress was made in school construction for over a dozen years.²

During the postwar period, the Army continued to shelter itself much as it had for almost a century. Congress appropriated funds annually for "construction of temporary huts and stables" and for repairs at established posts. The official position still held that most army posts were temporary, and therefore should be built at the least expense by the men themselves, using materials available locally. Special permission from the secretary of war was required to authorize purchase of materials at western posts and also for permanent construction or any alterations of permanent buildings. So most posts were erected by the men, usually

under the direction of inexperienced officers (there were not enough Quartermaster Department specialists to go around), with the inevitable expensive mistakes and poor living conditions. For the men, the only compensation was the promise, after 1866, of extra-duty pay for work beyond ten days for the Quartermaster Department (or other staff departments). The rates of pay--not raised until 1884--were 36 cents per day for mechanics and 20 cents for laborers. But the widespread employment of successive nine-day extra-duty assignments and other devious procedures often denied the men the extra pay.³

John E. Cox, a veteran of service on the northern Great Plains in the 1870s, provided in his memoirs a good account of the age-old task of throwing up winter quarters--which is what most of the posts amounted to--as units of the 1st Infantry did in late 1876. Logs were felled and bucked to proper length in a nearby cottonwood stand, then dragged to the construction site with oxen and wagons. Work parties for notching, raising, door and window cutting, roofing, and chinking were detailed out. With an old mill borrowed from an Indian agency, sawyers cut enough rough lumber to make doors and bunks, but, he noted, "Not many floors were laid." Cox's greatest single objection to the quarters was the general absence of light. But there could not have been any shortage of ventilation, for as the logs shrank and the chinking failed during the middle of the winter, the soldiers had to dig up the dirt floors and re-chink the walls from the inside.⁴ Regarding dirt floors, another man wrote home to his mother that same year, "It is a little unpleasant at first to be smothered with dust every time you walk across the room or whenever the door is opened. . . ." ⁵

The men complained, and so did their officers. In 1867 the Army and Navy Journal, not ordinarily given to uttering strong pronouncements, spoke out bitterly about the living conditions of the men. Resurrecting Secretary of War Poinsett's observation in 1840 that the United States Army was "the worst lodged army in Christendom," the Journal's editors averred that conditions were even worse than they had been in 1840. Although they acknowledged that the frequent movement of posts on the fast-shifting frontier imposed difficulties, they saw no reason why better quarters could not be provided.⁶

The fundamental difficulty facing the Quartermaster Department remained its appropriations--both because of the low levels and because of the unbelievably complex procedures required to get them, obtain authorization to build anything, and keep accounts (nearly everything was a separate line item requiring a separate accounting system; often as many as 50 accounts were kept simultaneously for Quartermaster Department operations). Annual appropriations for barracks and quarters never reached \$750,000 before the 1880s, and usually were much less. In fiscal 1868, for instance, the department received authority to spend \$470,170 to erect buildings of all types and \$79,000 for repairs on the 3,356 buildings occupied by the Army. The major program that year was the construction of eight posts in Texas, at a cost of \$189,637.60. But the Quartermaster Department was not allowed to send officers to direct the work. As a result, the money ran out before the projects were completed, and at every one of the posts technical errors were committed that imposed unnecessary maintenance costs almost immediately. Meigs, reviewing that mismanaged program, asserted that if he had been permitted to send an experienced construction supervisor to each post, the work would have been completed, at less cost, and at a high standard.⁷

The next year Meigs counted 5,137 buildings of all types at 255 posts scattered around the country. "Many of them," he remarked, "probably most of them, are of very rude construction . . . ," and that year he was empowered to build 104 more. But the primitive construction of most of the buildings meant that they needed almost constant repair.⁸ In 1871 Secretary of War William Belknap offered the following plea to Congress: "The appropriation for barracks and quarters has not been sufficient to shelter the Army in a manner essential to its comfort and health, and hence it is earnestly desired that the appropriation asked for that purpose may not be reduced."⁹

His prayer went unanswered, but the following year Congress did make one reform. Since 1859 every permanent building had required a separate authorization and appropriation for its construction. In 1872 the legislators decided that the War Department could erect such buildings at

costs up to \$20,000 each without separate legislative action.¹⁰ But no sooner than it had done that, Congress cut the Army's fiscal jugular. In the spring of 1873 the money for barracks and quarters ran out and all construction and repair stopped. The same thing happened in 1874.¹¹ The only thing that did not stop in the barracks, of course, was deterioration. But in 1874 Congress reduced the Army to an authorized 24,472 officers and men and further pared the budget to match.¹²

As might be expected, conditions at most posts were deplorable. The Army could not even observe its own regulations--as one historian has remarked, "Practically speaking, there were no regulations."¹³ Instead, penury and the nature of the Army's mission instilled a philosophy like that expressed by the quartermaster general of the Department of Texas in 1868:

It is a common remark among troops, that as soon as they make their quarters comfortable and convenient, they have to leave them. I am inclined to believe that the same results attend Frontier Posts; by the time they are made habitable and comfortable, the necessity that caused their construction has passed away,--a new line of defense is adopted, new posts are constructed at more remote points, and the old ones abandoned. Military Posts are matured villages planted in the wilderness to decline and decay as other villages of more permanent character steadily grow up around them. It would seem unwise, then, to say the least, to attempt the construction of permanent buildings, whose stone walls and chimnies a few years hence will serve as monuments to mark the waste of money, as those of Forts Phantom Hill and Belknap now do.¹⁴

But the general neglect of even the most basic needs of the soldiers was not confined to the frontier. As late as 1881, one officer lashed out against the Army's living conditions in general and asserted that things were not better in the permanent fortifications than in the West:

Our Engineer Department will not, so far as can now be foreseen, recommend to the Secretary of War, that any attempt be made to provide quarters for the occupation in time of peace, of the garrisons of Permanent works of defense yet to be erected, when there is room for such quarters on the exterior. Casemates are now called war quarters by the engineers, and their use in time of peace as quarters for either officers or men, will doubtless be given up as soon as it can be done.¹⁵

It was, finally, the doctors who took the Army to task for the way it housed its men. The Medical Department had acquitted itself with distinction during the Civil War--caring for the masses of casualties attributable to officers who did not perform as well in their own spheres. With high selection standards, by the late 1860s the department included physicians of probably higher quality on the average than the majority of their civilian counterparts. They kept pace with the swiftly evolving science of medicine, and especially with emerging notions of the importance of nutrition, sanitation, and fresh air to the well-being of people. Justifiably proud that the Civil War had seen no repetition of the ghastly sanitary conditions of the Crimean War, army surgeons understandably objected to peacetime living conditions that too often called to mind the siege of Sebastopol.¹⁶

Their spokesman was Dr. John Shaw Billings, one of the most remarkable figures in the history of the Army.¹⁷ In 1870 he compiled and published descriptions of the living conditions at most of the army's posts, based upon the medical histories that post surgeons had been required to keep since 1868, and special descriptive reports demanded for his compilation, under the title of A Report on Barracks and Hospitals with Descriptions of Military Posts.¹⁸ He prefaced the descriptions with a strongly worded summary and no small measure of criticism of the Army's record. He opened his case clearly:

The most important structures at a post, in a hygienic point of view, are the barracks proper, or soldiers' quarters, and guard-house, including prison-rooms or cells, and the hospital; and the object to be kept in view in their construction is to furnish shelter without diminishing that supply of pure air and light which is necessary to health.¹⁹

Like many medical men of his day, Billings attributed a wide range of evils to the effects of inadequate ventilation, especially where substantial numbers of men were housed together. He pointed out that most of the European armies had investigated the question of ventilation at length and had prescribed minimum cubic footages of air space per man in barracks; the British Army had settled on 600 cubic feet. For the United States, Billings proposed establishing a standard of 600 cubic feet north of the 36th parallel and 800 cubic feet south of there. But he warned that space alone was not enough to ensure a healthy environment. It was necessary to ventilate the rooms as well. He suggested that heating systems be designed to ventilate the rooms they warmed, although he preferred hot-water heating to the stoves that he said were nearly universal in the Army in 1870. If the Army insisted on using stoves, he proposed the adoption of a "ventilating double fireplace," actually an open-stove air exchanger--the first proposed standard on barracks heating other than the fuel ration. Finally, Billings insisted that barracks be constructed with plenty of windows on all walls.²⁰

The doctor railed angrily against the fact that acceptable living conditions were to be found nowhere in the Army--and were not even required by the regulations. His survey showed that the vast majority of barracks were overcrowded, affording far less than 600 cubic feet per man. Seventeen posts had barracks with less than 250 cubic feet per man. And provisions for ventilations were even worse. Of 95 posts reporting, the barracks at 72 had no ventilation at all (except what might filter through flimsy walls).²¹

The living conditions for most enlisted men were even more atrocious than the overcrowding would suggest. Billings felt special disgust at the continued use in the United States Army of multistoried two-man wooden bunks, which he pointed out had long since been discarded by all other armies. In England that had happened so long ago that the accidental discovery of one in a storeroom in 1842 had provoked curiosity and derision of the primitive ways of the ancients.²²

An evil which should be put an end to with the least possible delay [Billings avowed], is the use of the double bunk, usually aggravated by placing it in two tiers, and even, as at Fort Buford, in three. These bunks are used in ninety-three, or over one-half, of our posts. It is certainly time that the use of such bunks should be absolutely and imperatively forbidden, and so long as they are allowed to exist in dormitories, so long it is useless to hope that those rooms can be made what they should be. No one acquainted with the first principles of sanitary science will approve of their use. . . .

The only possible argument in favor of their retention is that they enable more men to be packed in a given space, and that they cost a little less than single bedsteads; neither being worthy of consideration, in view of the evils to which these relics of barbarism give rise, and for which the supposed necessity for their use is now considered as a sufficient apology.²³

Bad as they were, the bunks were almost the only amenities at most posts. Billings decried the almost universal absence of bathing facilities. Stressing the importance of cleanliness to health, he recommended the erection of a bath house separate from the barracks at every post. Nor was he patient with budgetary excuses. "While it may be perfectly true," he said, "that at almost every post the bath-tub should be considered as important an article of equipment as the cooking-stove, it is still no good excuse for lack of bathing facilities that regular bath-tubs and circulating boilers have not been furnished." Thereby letting the quartermasters off

the hook, he suggested that officers and men, if they exercised a little ingenuity, could provide themselves with something suitable for bathing.²⁴

Turning his critical eye on guardhouses, Billings discovered that at all posts tubs and buckets were universal in cells and prison rooms for the relief of bowels and bladders. The results, predictably, were offensive to an extreme. In their place he recommended the installation of earth closets, accepting for the moment the objection that water closets could not be furnished at most posts for want of water. Portable commodes using the dry-earth system, he pointed out, had already been provided to army hospitals with beneficial results.²⁵

As might be expected, Billings gave special attention to post hospitals, which he said were frequently worse than the barracks. His principal complaint was that the surgeons were never consulted about hospital design or construction, which meant that the buildings frequently were poorly arranged for hospital use. Worse, in his view, was the fact that neglect of the subject altogether was nearly universal, and hospitals seemed always to place last in construction priority.²⁶

Billings traced the widespread deficiencies in barracks and hospitals to the fact the War Department had distributed no standard plans or guidelines for construction at military posts, and he rebuked the department for its failure to do so. He believed that the time was long past when the Army should have issued "an order which shall establish the general principles of construction . . ." and afford some uniform guidance throughout the service. He was somewhat at a loss to explain why no such step had been taken, since, as he pointed out, a commendable set of regulations and designs had been prepared and printed in 1860. But those regulations had never been distributed, "and [their] existence even is known to but few officers." But perhaps that was just as well in Billings' judgment, because while he applauded the motives behind the 1860 regulations, he was critical of the results, which did not reflect the advice of the surgeons. "The plans for officers' quarters are good; for the men's barracks, tolerable; for the hospital, bad," he said.²⁷

In his summary, Billings asserted that in the Army mortality from disease (excluding epidemics) was 50 percent higher than it need be. That abysmal fact he traced directly to circumstances that could have been avoided. Chief among them, he claimed, was "the bad sanitary condition of barracks. . . . It has been said that we have the best-fed and the worst-housed Army in the world, and the statement seems more nearly correct than such generalizations usually are."²⁸

Billings' voluminous and detailed review of conditions to be found at almost every army post had important effects, for the ghastly details could no longer be ignored in Washington (except perhaps on Capitol Hill). By the most providential coincidence, the report appeared just after the quartermaster general himself returned from inspection tours of the Departments of the South and Texas in 1869 and 1870. Meigs pronounced himself "horrified" when he saw how the men lived, the most important cause of his horror being the cursed double wooden bunks. He returned to Washington determined to get single iron bedsteads distributed to the army.²⁹

Billings also could take satisfaction from the fact that new standard plans for hospitals were distributed in 1870 with orders that they be followed, and from that year on the surgeon general was empowered to prepare separate estimates and seek appropriations for hospitals.³⁰

Another positive influence of Billings' report was on the Quartermaster Department, which in 1872 drew up and distributed standard plans for temporary barracks and quarters in the West.³¹ But the secretary of war rejected all plans for bathhouses before the 1880s, citing the low level of construction appropriations and suggesting that the men should be able to look after themselves without cost to the government.³²

The military hierarchy had not yet heard the last from Dr. Billings on the subject of barracks and quarters. In 1875 he produced another report, modeled on the earlier one, which brought the survey up-to-date.³³ The first target of his renewed criticism was the standard barrack plan issued in 1872. It allowed only 500 cubic feet of air space

per man, had "no arrangements for ventilation, and no provision for bath-rooms." Although the 1872 plan was better than what had gone before, he believed that it was not as good as it could be.³⁴

The neglect of bathing throughout the Army continued to offend Billings' medical sensibilities, and he picked the subject up again. "I would strongly urge that cheap, strong bathing-tubs, or other means of cleansing the whole body, should be as regular a part of the supply of a post as bedsteads," he argued. After delivering a long discourse on the importance of cleanliness to health, he expressed his pique at the commonest excuse offered for not constructing bathing facilities at the posts--that water was usually in short supply. If that be the case, he said, and if heating were difficult, then showers could meet the need. To prove his point, he offered a design and specifications for a multiple-stall shower unit based on a central reservoir/boiler.³⁵

Billings claimed that the deaths or medical discharges of about 100 men per year could be attributed directly to "overcrowded and badly ventilated barracks."³⁶ But things appeared to be looking up for those men confined to guardhouses, for he approved of the 1872 plan for those buildings, which provided for ridge ventilation--but only so long as provision were made for admitting fresh air during the winter.³⁷

Billings discovered only one improvement in living conditions between 1870 and 1875. That was the general distribution of single bedsteads in place of the detested wooden bunks:

I am very glad to say that the double and two-story wooden bunks are now very nearly abolished, and that the iron bunks now furnished by the Quartermaster's Department are very satisfactory, with the exception of a few, which are two-story in pattern--that is, an iron frame containing two beds, one four or five feet above the other. Under no circumstances, except for the most temporary emergency, should beds be arranged in this manner. It is connected with deficient air-space, and gives an appearance of room when there is not. Every man

should have his sixty square feet of floor space as much as his ration.³⁸

But the wooden bunks were not entirely banished (11 posts still reported them), and the mere introduction of iron bedsteads addressed only part of the prevailing sanitary problems. Billings scorned the Army's oldest sleeping tradition, the blanket and bedsack:

But even with the single bunks the supply of bedding is unsatisfactory. No sheets or pillows are furnished, and the men come into direct contact with the blankets, and use their greatcoats for pillows. The blankets are seldom washed, although they are aired and beaten occasionally. The bed-sacks are usually too short, and, as Colonel C. H. Smith . . . remarks, "No amount of too short bed can make a man comfortable."

The recommendation . . . that wire mattresses, hair pillows, and sheets be furnished for the troops, is believed to be a good one, the results of which in promoting comfort and content among the men, would be a full equivalent for the money it would cost.³⁹

Provisions for eating were not satisfactory in the barracks. Billings was highly critical of the fact that "mess-furniture," meaning plates, forks, and so on, was not issued by the Army and that the men had to purchase their own with company funds. The result was that the men were inconsistently, often incompletely supplied with such articles--which too often had to be shared during meals. He believed that mess furniture should be considered part of the camp and garrison equipage and so supplied by the Quartermaster Department.⁴⁰

Finally, Billings recalled his recommendation in 1870 that ventilating fireplaces be constructed, at least for hospitals. He said that a few were built and tested, including one in the hospital at Fort McHenry. But although in his opinion they worked reasonably well, there were enough

technical problems in them to require that their use be halted. Instead, a majority of hospitals in 1875 were heated with sheet-iron cylinder stoves, and there was a continuing, inherent conflict between the needs of ventilation (air exchange) and heating when winter temperatures were very low. All things considered, he suggested that basement furnaces were the best way to heat buildings.⁴¹

So, according to Billings, the life of the enlisted man had improved since 1870, but not much, and most barracks remained noisome hovels. But perhaps those men who lived in barracks of any description were comparatively fortunate. The same year that Billings issued his second report, the secretary of war complained almost bitterly that, despite years of protests and the strongest recommendations of the surgeons, men at most of the coastal fortifications still had no quarters or hospitals and were forced to live in casemates.⁴² That situation had not changed by the end of the decade.

Improvements came in small packages in the decade and a half after the Civil War. And they came in the absence of any comprehensive policy on how soldiers should be housed and what furniture should be available to them, except in the broadest sense. On a case-by-case footing, during the 1870s the Army first banished the double wooden bunk, giving the men at least three different kinds of single iron besteads, with two versions of one of them (and with wooden slats not always delivered with the frames). A policy on stoves was established and standard patterns became the rule. Footlockers were introduced to permanent barracks, and later chairs and pillow sacks, and by the end of the decade the Quartermaster Department had begun to address the need for decent light in the men's quarters. Specifications for all kinds of supplies, which steadily increased in variety, were formalized and updated.⁴³ But these miscellaneous actions did not represent policy, nor were they taken consistently. Here and there men still slept together on double bunks, and everywhere they had to await the passage of years before they received sheets to sleep in or forks to eat with, unless they provided their own.

Nonetheless, by the end of the decade the Army was headed toward reform in the way it managed, housed, and furnished its soldiers. The pressures were there, and not only from protesting surgeons or officers at the posts. The men exerted their own influence by deserting in great numbers, running away from conditions that few self-respecting people would tolerate.

To keep the men home from grogeries and brothels, or from going over the hill, "home" had to have some appeal. It was widely supposed in the 1860s and 1870s that a well-supplied reading room would equal the attraction upon the soldier of any den of iniquity. In 1878, therefore, the secretary of war convened a board of officers to develop recommendations on how the 1866 legislation authorizing post schools and reading rooms might be implemented. The board suggested using post funds and Quartermaster Department appropriations for construction. Thereafter, the Quartermaster Department began to furnish a growing number of posts with buildings for schools, chapels, reading rooms, and libraries. In addition, also on the board's recommendations, the department began to procure and distribute to post libraries as many periodicals and newspapers as its incidental expense appropriations allowed. That may not seem important by itself, but it marked the first time in its history the Army supplied something for the comfort of the enlisted man that it was not forced to by absolute necessity. And the belated solicitude proved highly satisfactory. In 1881 the secretary of war was pleased to announce, "The reading-rooms established at most of the posts are very popular with enlisted men as well as officers. The average daily attendance upon them is about 4,800."⁴⁴

That same year the Quartermaster General followed suit by encouraging other on-post alternatives to off-post distractions, through the publication in a popular building magazine (distributed to post libraries) of plans for bowling alleys and billiard tables. Although public funds could not yet be used for such puposes, Meigs hoped that the men would use the plans to build their own facilities and, presumably as an indirect result, further elevate their moral character.⁴⁵

It was a last gesture, for on February 6, 1882, Montgomery Meigs retired.⁴⁶ An era in army supply ended with his departure, and the ultimate establishment of real policies on furniture and other comforts for the soldiers would come after his time. But it was he more than any other person who had led the United States Army in a transition from wood and handcrafts to iron and industrialization.

Even as Meigs departed, some fundamental things were already about to change for the Army and its treatment of its men. A reform-minded secretary of war, Robert T. Lincoln, had taken office in 1881, and an "army reform" movement was just getting underway. Although it was only partly successful, it changed conditions in the ranks a good deal.⁴⁷

In the century since the Continental Army brought Cornwallis to bay, there had been little real change in the living conditions of the soldiers. Such advances as had occurred were superficial, and did little to improve the quality of life as a whole. A Continental Army veteran entering a typical barrack room as late as 1870 would have found little that was unfamiliar to him. The same could be said of the barracks of 1880, with the single exception of the new bedsteads. But by 1890 that would no longer be the case, and there were many more changes yet to come.

The officers of the Army seemed to know that reform was in the air, and some of them tried to make 1880 a dividing point between an unhappy past and an enlightened future, at least for soldier housing. Lieut. Col. Thomas W. Anderson that year surveyed fellow soldiers and army surgeons on what should become the standards for barracks and their furnishings. Among other things, he found that overcrowding was generally deplored, and that there was universal agreement that no more than one company should be housed in one barrack. But the officers split widely on the question of whether the whole of a company should be in one big room or divided among squad rooms; strong arguments supported every position. "The English, who have tried both systems," he said, "have finally settled on a sleeping-room of twenty-four beds as the best for their organization." He went on to point out that enlisted men, when asked, universally preferred the smaller rooms. It was the

first time the common soldier had been asked his views on such a matter.⁴⁸

But in meeting some basic needs, Anderson complained, the Army in 1880 had a long way to go. Cleanliness was one:

On the subject of bath-rooms there is absolute unanimity. The Regulations say the men must be made to bathe frequently; the doctors say it should be done; the men want to do it; their company officers wish them to do so; the Quartermaster's Department says it is most important, yet we have no bath-rooms.⁴⁹

Again Anderson placed the desires of the soldiers on a par with the opinions of officers, doctors, and War Department bureaucrats. Such interest in the men's sentiments was new in 1880, but it grew out of an increasing regard for their well-being that had surfaced since the end of the Civil War.

Notes

1. Meigs to Sherman July 9, 1866, quoted in Risch, Quartermaster Support, 484-85. This was in the midst of a protracted and often heated correspondence among high-ranking officers regarding the execrable conditions at the western posts, much of which Sherman goaded the Quartermaster Department with by publishing it in his annual reports. Other selections from those exchanges appear in other parts of this report.
2. Ibid., 489.
3. Ibid., 486-87. Jack D. Foner, The United States Soldier Between Two Wars: Army Life and Reforms 1865-1898 (New York: Humanities Press, 1970), 16-17.
4. John E. Cox, Five Years in the United States Army: Reminiscences and Records of an Ex-Regular (Owensville, Ind., 1892; reprinted New York: S. Lewis, 1973), 108-10.
5. Sept. 19, 1896, quoted in Don Rickey, Forty Miles a Day on Beans and Hay: The Enlisted Soldier Fighting the Indian Wars (Norman: University of Oklahoma Press, 1963), 95n.
6. "Barracks and Quarters," Army and Navy Journal 4(March 23, 1867):492.
7. ARQMG 1868, H. Ex. Doc. 1, 40 Cong. 3 Sess., 814; Risch, Quartermaster Support, 491. As examples of the technical errors, at Fort Davis officers' row was established on low ground at the mouth of the canyon and was consequently subject to routine flooding; an elaborate diversion system later had to be built to correct the problem. At the same post the third barracks was not completed. Its adobe walls stood roofless for several years, and as a result the building became a maintenance nightmare when it finally was finished. It was also the first

building to erode when the post was abandoned in the 1890s. Few of the 1868 buildings at the Texas posts were properly or efficiently constructed.

8. ARQMG 18969, H. Ex. Doc. 1, 41 Cong. 2 Sess., pt. 1, pp. 222-23; Risch, Quartermaster Support, 491; Weigley, History of the United States Army, 267.

9. ARSec War 1871, H. Ex. Doc. 1, 42 Cong. 2 Sess., pt. 1, p. 9.

10. Risch, Quartermaster Support, 487.

11. ARSecWar 1873, H. Ex. Doc. 1, 43 Cong. 1 Sess., pt. 1, p. 8; ARQMG 1874, H. Ex. Doc. 1, 43 Cong. 2 Sess., pt. 1, p. 108.

12. Weigley, History of the United States Army, 267. See also appendix N. The force was divided in eight departments, 11 districts, and three divisions in 1879.

13. Risch, Quartermaster Support, 488.

14. E. J. Strong, quoted in J. Evetts Haley, Fort Concho and the Texas Frontier (San Angelo, Tex: San Angelo Standard-Times, 1952), 132.

15. Lieut. Col. Thomas M. Anderson, "Army Posts, Barracks, and Quarters," Journal of the Military Service Institution 2(1881):446.

16. The standard history of the Medical Department is P. M. Ashburn, A History of the Medical Department of the United States Army (Boston: Houghton Mifflin, 1929). Concerning the quality of army doctors, Wil Ebel concludes flatly, "Compared with civilian doctors, the soldier-doctors were a learned men. Soldier-doctors were graduates of regular medical colleges while many civilian doctors . . . had never seen a sheepskin other than on a sheep." Wil Ebel, "Soldier-Doctors--and a Personal Tragedy," Periodical Journal of the Council on Abandoned Military Posts 9(Fall 1977):24. The periodical literature includes many studies of

individual surgeons in the post-bellum period and more than a few from earlier times. For one example, especially as regarding the details of medical practice at a post, see my "The Role of the Army Surgeon in the West: Daniel Weisel at Fort Davis, Texas, 1868-1872," Western Historical Quarterly 3(Jan. 1972):53-66. For the antebellum period, two good examples are Paul J. Scheips, "Albert James Myer, an Army Doctor in Texas, 1854-1857," Southwestern Historical Quarterly 82(July 1978):1-24, and James O. Breeden, "Health of Early Texas: The Military Frontier," Southwestern Historical Quarterly 80(Apr. 1977):357-98.

17. John Shaw Billings established himself as a pioneer in both American medicine and American library science. Born in southern Indiana in 1838, he graduated from Miami University in 1857 and earned his M.D. at the Medical College of Ohio in 1860. He entered the Army as an assistant surgeon April 16, 1862, serving in the field until transferred to the Surgeon General's Office in 1864, where he remained for 30 years, eventually as deputy surgeon general with the rank of lieutenant colonel. During those three decades, he collaborated with Dr. Robert Fletcher to produce the Index-Catalogue of the army Medical Department library, something that CDAB describes as "a most important contribution to American medicine." It also earned him the title of "father" of the National Library of Medicine and made him well-known in library circles as well as in medicine. Billings was a man of varied accomplishments, many publications, and several honors, including two brevets during the Civil War. He planned the Johns Hopkins Hospital and is regarded as an outstanding pioneer in preventive medicine--as his 1870 and 1875 reports on barracks reflect. Billings retired October 1, 1895 and spent the rest of his life in New York. He was asked to go there to consolidate the Astor, Lenox, and Tilden libraries into the New York Public Library--making him the "father" of that great institution as well. He died in New York in 1913. CDAB, 80; Heitman, Historical Register, 1: 218.

18. John S. Billings, A Report on Barracks and Hospitals with Descriptions of Military Posts, Circular 4, Surgeon General's Office (Washington: Government Printing Office, 1870).

19. Ibid., vi.

20. Ibid., vi-xiv. An early version of the ventilating fireplace is shown in the 1864 barracks design in appendix B.

21. Ibid., ixv-xv. The current regulations, he pointed out, prescribed 225 square feet of floor space (375 cubic feet on the average) per man north of 38° and 256 square feet (426 cubic feet) south of 38°.

22. Ibid., xvi.

23. Ibid. Billings' numbers relate to the number of posts (chiefly those with resident surgeons) responding to his survey rather than to the total number of army posts. Any figures on the numbers of posts--including the 255 for 1869 offered previously--should be read with caution for the two decades after the Civil War. The question was really one of definition. Many subposts, camps, stations, and the like were not regarded as posts, no matter how substantial or long-inhabited. On the other hand, frequently they were included when the number of posts was counted. Much the same problem of definition apparently applies to buildings. The Quartermaster Department's figures changed from year to year to a degree beyond what could be accounted for by construction and abandonment.

24. Ibid., xvi-xvii.

25. Ibid., xvii. The earth closets and portable commodes using the dry-earth system were "honey-bucket" privies. That is, wastes were deposited in removable containers that could be emptied at an appropriate location.

26. Ibid., xx-xxi.

27. Ibid., xxv. He was referring to Barracks Regulations 1860, printed in 1861. See appendix B.

28. Ibid., xxxii. The statement about unnecessary mortality attracted the particular notice of the Army and Navy Journal, which gave Billings' report a warm, if brief, reception. "Barracks and Hospitals of the Army," Army and Navy Journal, 8(Jan. 21, 1871):359-60.

29. Risch, Quartermaster Support, 488; Meigs to Bingham and Ludington. Sept. 25, 1871, QMConFile--Bunks, RG92.

30. Risch, Quartermaster Support, 486; Foner, United States Soldier Between Wars, 23; U. S. War Department, Surgeon General's Office, Approved Plans and Specifications for Post Hospitals, Circular 3 (Washington: Government Printing Office, 1870); Approved Plans and Specifications for Post Hospitals, Circular 2 (Washington: Surgeon General's Office, 1871); Approved Plans and Specifications for Post Hospitals, Circular 10 (Washington: Surgeon General's Office, 1877). These printed documents are filed in the Records of the Office of the Surgeon General (ROSG), Circulars and Circular Letters, 1861-85, RG112, NA.

31. ARQMG 1872, H. Ex. Doc. 1, 42 Cong. 3 Sess., pt. 1, p. 148. The plans are presented in appendix B.

32. Risch, Quartermaster Support, 488-89.

33. U. S. War Department, Surgeon General's Office [John S. Billings], A Report on the Hygiene of the United States Army, with Descriptions of Military Posts, Circular 8 (Washington: Government Printing Office, 1875).

34. Ibid., ix. Billings said that the first barracks built according to the 1872 plans was at Fort Douglas, Utah, but there were others in existence at other posts by 1875. Note that this statement confirms that the washroom shown in the 1872 plan, like that in the 1860 plan, was for laundry, not men. The Army's terminology clearly distinguished a "wash-room" from a "bath-room."

35. Ibid., x-xi. See appendix L for the design and specifications. I was not able to determine whether any showers on Billings' plan were built, although the basic idea was simple to the point of elegance.

36. Ibid., xvii.

37. Ibid., xviii.

38. Ibid. Some or all of the two-story models may have been pipe-legged Composite bunks purchased in fiscal year 1871. See the following chapter and appendix G.

39. Ibid.

40. Ibid.

41. Ibid., lvii.

42. ARSecWar 1875, H. Ex. Doc. 1, 44 Cong. 1 Sess., 6.

43. The administrative history of these subjects is addressed in the following chapters, and the specifics in other parts of this report.

44. Risch, Quartermaster Support, 489-90; ARSec War 1881, H. Ex. Doc. 1, 47 Cong. 1 Sess., pt. 2, p. 23.

45. Risch, Quartermaster Support, 490.

46. Ibid., 514.

47. Foner, United States Soldier Between Wars, 77-95, traces the history of the army reform movements, whose beginnings he puts at 1880-81. I suggest that some of the seeds were sown in the poor housing and wooden bunk discussions of the preceding decade and a half.

48. Anderson, "Army Posts, Barracks, and Quarters," 431-33.

49. Ibid., 433-34.

THEY GIVE EACH SOLDIER A SEPARATE AND DISTINCT BED
(1866-1880)

Immediately after the Civil War the Army continued the general use of double wooden bunks, in two (sometimes three) tiers, mostly built on site at the military posts. Yet, at the same time it had on hand almost a half-million single iron bedsteads that it was selling as surplus as rapidly as possible. Those were mostly the "hospital pattern" bedsteads, evidently not believed sturdy enough to withstand the hard usages of barrack rooms; those in photographs of Civil War hospitals indeed do not appear very rugged. There were a variety of ways to get rid of them. In 1866, for instance, 34 iron bedsteads, 2,984 single bedsacks, and 626 double bedsacks were among the list of surplus clothing and equipage and hospital furniture donated to the city of Portland, Maine, as relief after a disastrous fire, in obedience to an act of Congress.¹

Official interest in converting to iron bedsteads for barracks continued spasmodic. Eventually, it was spurred by the old problem of finances. In 1867 the quartermaster at New York City had 1,000 wooden bunks built by contractors because extra-duty men were not available for the purpose. But he paid \$9.50 per unit. Even if that were spread (presumably) over the requirements of four men, surely America's growing iron industries could fill the Army's need more cheaply, at least in urban centers.²

The demand for bunks was greatest, and most expensive to meet, around New York City, since forts there housed the largest concentrations of recruits. It is not surprising, therefore, that the earliest postwar attempts to develop a suitable iron bunk came from that city--as had the earlier efforts of Whiting and Johns in the years before the war. Lieut. Col. Henry D. Wallen of the 14th Infantry submitted the first candidate to the Quartermaster Department late in 1867. A board of officers assembled to examine his bunk and in December offered the following description and recommendation for the quartermaster general:

[The board members] find that it is constructed of wrought iron, and put together in a manner to insure strength and durability. It is 6 ft. 3 in. long in the clear, and 6 ft. 4 in. long outside, 30 inches high, at the head board, and 14 inches high generally, 2 ft 3 in wide in the clear, and it weighs about 80 pounds, which can be furnished at 15¢ per pound, perhaps less. The bunk is made to fold up so as to greatly economize space in the barracks, and a comfortable shiny seat is formed by a piece of board that comes up as it is folded. The knapsacks, belts, muskets, and mosquito bar are supported on the shelf and projections. It contains a box or locker for cleaning utensils & surplus clothing &c, this box can be unlocked and opened on either side.

The Board is of the opinion that where barracks afford sufficient space to allow each man room enough to sleep without others above or below him, that Genl Wallen's bedstead would meet the wants of the service most excellently and they recommend its adoption by the Government, in the most earnest manner, but not to the exclusion of other bedsteads possessing superior merits with which the Board however have no way of making a comparison, as they are confined in the action to the one presented to them.³

There is no evidence that any of Wallen's bunks were manufactured or placed in barracks, although it is conceivable that some were introduced at the New York forts. It is also possible that Wallen produced his bunk as a one-man variation of the double folding iron bedsteads known to have been in use at Governors Island at least as early as 1854.⁴

At about the same time that the Army was examining Wallen's bunk, Col. Delos Sacket, one of the inspectors general, pushed forward as his own invention a two-man bedstead devised by C. S. Snead of Louisville, Kentucky. He too gained the attention of a special board of officers, who

recommended that a few be purchased for testing, if its 109-pound weight could be reduced. That sturdy contraption, which Snead patented in 1869, would apparently have lasted forever. Constructed completely of heavy wrought iron, it was a two-level affair with foot lockers built onto the front of the top and bottom bunks, and racks for two muskets at the opposite end. But besides its weight, Snead's bunk had another objectionable characteristic--the Army could not afford it. In 1870 Snead offered to provide his two-story bunks at \$18.00 each, and a single-level version for hospitals at \$10.00; he got little attention from the Quartermaster Department with those prices.⁵

The subject of iron bedsteads continued to be addressed without central direction from the Quartermaster Department. Decisions on whether to procure manufactured bedsteads were made locally, and the bunks began to appear, especially around New York, in such numbers and varieties as local budgets allowed. During the winter of 1867-68, the recruiting depot at David's Island, New York, began to fill up with men. But there were no bunks on hand and no carpenters available to build them, so the men slept on floors. Assistant Quartermaster General Rufus Ingalls, in response to a request for 1,000 bunks, concocted something called a "Jack" bunk. The depot commander fairly gushed with enthusiasm after the first lot was delivered, "[I]t is the best bunk that I have seen in the Army. It consists of three pieces--the upper & lower 'Jacks' are of wrought iron--the upper one having an iron head-board attached to it. The bottom of substantial slats battened and well screwed together. I consider these bunks exceedingly serviceable and worth more than the price paid for them." He recommended that they be furnished to all recruiting depots. But Ingalls had ordered only 600 by the end of the year and asked approval of that action and permission to build the remaining 400. Wallen joined a number of other officers in endorsing Ingalls' action, but nothing further was said about the matter.⁶

The determined Ingalls kept trying. On October 21, 1869 he ordered the manufacture of a bedstead "similar to the 'Miller' bunk" with some modifications "with a view (if it worked well) to send the sample West, and have the Bedsteads made for Fort Riley." The Miller bunk, he said,

was easily disassembled and also could be stacked up in daytime. Ingalls acted in reponse to instructions from Meigs, who had sent him a sketch of a "Pattern Bedstead" with orders to have one made as a sample. Along with that one, he forwarded to Meigs another, apparently of his own design, which he described as "a folding Iron Bedstead recently gotten up in this city [Philadelphia], which surpasses, in my opinion, anything of the kind now extant." Whether this was the Jack bunk, or another variation on Wallen's theme, is not apparent. In any event, the question of whether to supply 500 to Fort Riley was deferred by the quartermaster general, whose office two years later could find no description of the Miller bunk in its files.⁷

Although most of the unsystematic attention to the procurement of iron bedsteads centered on the New York area, which was served by the Philadelphia office, interest in the subject surfaced elsewhere, as the following letter from the quartermaster depot at St. Louis to the quartermaster general of the Military Division of the Missouri reflects:

In your order for stores for Fort Riley dated July 27, 1869, two hundred fifty (250) Iron Bedsteads two story or double, are called for.

There are none to be found in this city ready made, but I can have them made according to the enclosed plan and specifications for fifteen dollars (\$15) each. As the cost is so much greater than the single iron bedsteads, which can be purchased from the Medical Department for fifty cents each, I do not feel authorized to order the two story bedsteads to be made without further authority. Please instruct me what to do in the matter.⁸

Despite the fact that conversion to single metal bedsteads had been order since 1854, it is apparent that much of the Army regarded such objects as the "hospital pattern" and assumed that healthy men should sleep in pairs. That confusion was not the only influence retarding the distribution of iron bunks to the men. There was also a lack of direction

from the Quartermaster Department, with a consequent absence of clear purpose on the part of quartermaster officers at the depots. No one would make any definite decisions. Appropriations were another problem. It was assumed that manufactured bedsteads must be paid for out of the budget for barracks and quarters, which was already under considerable strain just to keep the thousands of ramshackle buildings in repair.

Finally, it is reasonable to suppose that the responsible officers were sufficiently insulated from the terrible conditions of barracks life that they could ignore the problem without personal discomfort. The result was that as late as 1870 the Quartermaster Department did not carry iron bedsteads in its annual inventories of stores on hand, and although iron bedsteads could be found here and there, especially around New York, the vast majority of the men slept in pairs on tiered wooden bunks infested with insects.⁹

All that changed, and very quickly, beginning in 1869. The quartermaster general's comfortable insulation from the realities of barracks life ended when he made a tour of inspection through the South and Texas in 1869 and 1870. The "rough-board, vermin-infested bunks" at the Texas posts "horrified" him. He vowed that at least one feature of barracks living would change.¹⁰

Knowing that eventually the army would have to purchase bunks for some 30,000 men, in the late 1860s a substantial number of would-be suppliers presented samples of their wares to the Quartermaster Department. The various bedsteads accumulated in storage after receiving only passing attention. On October 6, 1869, Meigs prepared a sketch of an iron and wood bunk combining features of several of the samples, which he passed to his staff with the inscription, "Let a pattern of this Bedstead be made as soon as possible."¹¹ This would later be known as the "Barrack bunk."

The next year was devoted in part to developing a standard pattern for a general issue army bunk. By 1871 Meigs was ready to go forward with the project and cleared the bureaucratic obstacles in September of that

year by ordering his staff to reclassify bedsteads as an item of camp and garrison equipage, thereby removing them from competition with barracks and quarters.¹²

The actual adoption of a standard army bunk was not as simple a process as it might have been. Purchase of metal bunks by post and departmental quartermasters was authorized at the start of 1871, and Meigs placed a high priority on the shipment of bunks to Texas. But developing a standard took some time, as both Meigs' Barrack bunk and competing commercial models had to be tested and improved. Of the latter, a sample submitted by the Composite Iron Works Company of New York appeared superior to all others.

By July 24, 1871, Meigs had made his decision. The secretary of war had already authorized the manufacture and shipment of 4,000 of the Barrack model to the Texas posts, but Meigs believed that the Army should have the choice of two bunks, given the superiority of the Composite model over his own design. He submitted two sketches for the secretary's approval, along with a rambling, complicated presentation.

The Barrack bunk, he said, had been derived from several patterns received from various sources and had the signal advantage of not being patented or, he believed, patentable. It also could be stacked in the daytime to reduce crowding in the barracks.

The pipe-legged Composite bunk, on the other hand, was manufactured by a patented chilled-iron casting process. It was "considered excellent," and "quite a number" had already been ordered in the preceding six months. Since the Army was about 30,000 men strong, Meigs pointed out, it would require about 30,000 bunks, and it could be expected that there would be a demand for the Composite model: "These Bunks are so much better than those in general use in the Army that all will ask for them."

Comparing the two, Meigs priced the Barrack bunk at \$7.00 and the Composite at \$8.00, but he thought the greater durability of the latter

justified the cost. Why, then, not adopt it as the one model for the Army? Because, he argued, the government should not put itself at the mercy of patent holders. He therefore suggested that both models be adopted to allow a non-patented alternative and that he be allowed to solicit proposals to supply either or both. Four days later the secretary granted his approval.¹³

But the procurement of bunks was already underway. In August the contract for 4,000 Barrack bunks was filled and all were shipped to Texas, less 292 diverted to Baton Rouge, Louisiana.¹⁴ About 1,600 copies of a similar bunk, manufactured by M. C. Miller of New York, had also been purchased, probably that same year.¹⁵ And it is evident that there were other purchases of other bunks arranged locally. Such sporadic action was not what Meigs had in mind. He therefore instituted one of the earliest large-scale solicitations for an item of supply that the Army ever made in peacetime.

On September 8, 1871, the Quartermaster Department advertised a request for bids for up to 12,000 bunks. Prospective bidders were asked to submit costs for either of the two bunk models, with and without wooden slats.¹⁶

By the end of October the Quartermaster Department had received proposals from seven firms to supply iron bunks.¹⁷ Two of them were unexpected and bothersome. The lowest eastern bidder was M. C. Miller of New York, who proposed to furnish the Barrack bunks at \$7.00 each, "painted two (2) good coats of Lead and Oil Paint, complete," or without slats, painted, for \$5.00. But he had some news for Meigs: "Being the inventor of this Bunk, I have furnished the Quartermaster Department 1600 of same, and I believe there has never been any repairs required to them since they were made, and are pronounced to be the best article furnished for the purpose intended."¹⁸ This, apparently, was the Miller bunk of two years previous, and Meigs may have had some understandable worry that his "unpatentable" Barrack bunk was inadvertently a copy of Miller's design. But, it turned out, Miller's bid was for a bunk not advertised, and Meigs launched a fruitless search to find out just what it was.

The notes of the quartermaster general's review of the proposals show that Miller was not the only bidder to confuse the process. The next lowest eastern bid was from the Composite Iron Works Company, also of New York. But they, too, had departed from the advertised designs. They proposed to supply the "Chase" model bunk, a simplification of the "original Composite or Pipe Bunk," at \$5.50 a copy (without slats). The new bunk was actually an improvement over the earlier one--among other things it could be stacked, and it was clearly based on the stacking feature of the Barrack bunk; gone were the cast-iron gas-pipe legs, replaced by Y-shaped wrought-iron feet matching those on the Barrack bunk. But there was some question about whether that justified its higher cost when compared with the lowest western bid--from Snead of Louisville for the Barrack bunk--at \$4.75 (the next lowest western bid was \$5.50). The Composite was really the better of the two, but the extra 75 cents per unit would amount to \$15,000 for 20,000 bunks. On the other hand, Meigs believed that the transportation costs of the Barrack model might be higher.

When he did render his decision, Meigs, with the aplomb of a seasoned bureaucrat, came down on both sides of the question. Miller vanished from consideration with his mysterious bunk, and the Quartermaster Department awarded two contracts for both other models--on November 22, 1871 to Snead, and five days later to Composite.¹⁹ With the mass procurement finally underway, Meigs summarized the entire subject for the secretary of war at the end of 1871:

Many years since it was ordered by the War Department that the wooden bunks, used in the barracks, difficult to keep clean and affording harbor for vermin, should be replaced by single iron bunks. The war interfered with the provision of such bunks very necessary to health and morale of the troops, and the work is now in progress. The estimates submitted for the next year contemplate the completion of this work.

The service to which these iron bedsteads are exposed in barracks is severe, and several patterns heretofore in use have failed in actual service.

Two patterns are now manufactured, which are believed to be well fitted for use. They have been tried at several posts, and thus far always with favorable results. One is made of bar-iron, the other of gas-pipe [sic]; both have wooden slats to support the bed, and are easily taken apart for transportation. Both are so arranged that in the daytime they can be piled three tiers high without disturbing the bedding, but when in use at night they are all put upon the floor, and no soldier will be obliged to sleep over his comrade's bed.²⁰

The Army's Barracks Board authorized the distribution of a total of 8,471 iron bunks to military posts during 1871, not counting those (including Miller's) purchased without authorization. All of them were purchased before the two major contracts to Snead and Composite. Since they were a new item of issue, and a comparatively expensive one, the Quartermaster Department accounted in that first year for every bunk and its destination.²¹ The following is the distribution of the Composite iron bunk, showing destination and number:

Fort Sully, Dakota	264
Newport Barracks, Kentucky	300
Fort Hays, Kansas	60
Nashville, Tennessee	100
Fort Larned, Kansas	100
Fort McHenry, Maryland	84
Nashville, Tennessee	180
Omaha, Nebraska	600 (plus 100 Barrack bunks)
Fort Randall, Dakota	270
Fort Wayne, Michigan	250
New York	40
Fort Whipple, Virginia	150
Atlanta, Georgia	300
Columbia, South Carolina	40
Darlington, South Carolina	75
Sumter, South Carolina	60
Pulaski, Georgia	120
St. Augustine, Florida	120
TOTAL COMPOSITE BUNKS	3,113

All of the foregoing were probably of the earlier pattern used as the basis for the solicitation in September rather than the later model submitted with Composite's bid and actually purchased after November

1871. Also, it can be supposed, but not with absolute certainty, that many of the 600 bunks shipped to Omaha were destined for service at posts farther west.

From the same list, the following is the distribution of the Barrack iron bunk, showing destination and number:

Nashville, Tennessee	86
Angel Island, California	50
Leberton, Kentucky	60
Omaha, Nebraska	100 (plus 600 Composite bunks)
Newberry, South Carolina	60
Fort Hays, Kansas	60
Fort Harker, Kansas	300
Humboldt, Tennessee	60
Shelbyville, Kentucky	35
Newport Barracks, Kentucky	24
Frankfort, Kentucky	146
Chicago, Illinois	200
Jackson, Mississippi	57
Fort Leavenworth, Kansas	120
Texas Posts	<u>4,000</u>
TOTAL BARRACK BUNKS	5,358
TOTAL BOTH BUNKS 1871	8,471

It should be noticed that some locations received both models. But Meigs was obviously on solid ground when he predicted that the Composite product would be popular in the Army. If not for his personal involvement in the Barrack bunk, and the large special order for the posts in Texas,²² Composites would have outnumbered Barrack bunks by almost three to one. Partly as a result, the Barrack bunks purchased from Snead in November 1871 were the last of this type acquired by the Army.²³

The Barrack bunk soon caused problems. At first the new bedsteads received high praise, chiefly because they were so delightful a contrast to their much-bedamned wooden predecessors. But were they all they could be? The acting quartermaster at Brownsville, Texas, was the first to offer suggestions for improvement. He wanted to add two bolts to the head piece to "hold the soldiers chest," two upright rods to support a

shelf to hold the knapsacks, and something to which a mosquito bar could be attached. With such changes, he promised, the bunk would be the best army bed possible.²⁴

But more serious technical defects appeared in the Barrack bunk. By December 1871 reports arrived that the screws ("screw-bolts") holding the slats down had a tendency to break when weight was put onto the bed. An officer at Lebanon, Kentucky, suggested slotting the slats as a remedy, since the screws were set too tightly into the wood. When that was relayed to Snead and Company, the firm suggested a new bolt instead, asking for a quick decision because mass production of the bunks was about to begin.²⁵ But, in the Army's bureaucratic way, the press of other commitments prevented the request from reaching the quartermaster general's attention.

In June 1872 a very frustrated Snead complained to the Quartermaster Department. The firm reported that it was turning out about 50 bunks a day, had already delivered 1,198 to the Quartermaster Department, and was about to deliver another 1,000. The Army's tardiness over the question of the bolt aggravated the company's other problems. Having made a major investment in machines to manufacture the bunks, they had had difficulty in obtaining supplies of steel; the shutdowns had required training a new staff of workmen every time production resumed. Further delay on the Army's part, Snead suggested, would again cause them to lose their experienced workers, thus further retarding production.²⁶

Actually, the department had already agreed to the change, although word had not yet reached Snead. Although most or all bunks produced under the contract had screws, replacement bolts eventually found their way to all Barrack bunks in service. Whatever the case, the chief quartermaster of the Military Division of the South was called on to make a special investigation of the bunks produced by Snead and reported that all were "of good quality and give entire satisfaction." He, too, urged that the bolt question be resolved.²⁷

During fiscal 1872 the quartermaster general reported that he had distributed 8,666 iron bedsteads, probably about half each from Composite and Snead. "They give each soldier a separate and distinct bed," Meigs said, "and conduce both to comfort and health, and are a great improvement upon the rough wooden two-story bunks heretofore in general use at military posts." But thereafter the Composite bunk was to be favored over the Barrack model, and apparently no more of the latter were bought after the first large contract to Snead in November 1871. "The contract for the ensuing year [fiscal 1873] has been awarded to the Composite Iron Company, their bunk being the best," Meigs continued. "The price is \$5, which is the same as last year's price for this bunk."²⁸

At the end of the fiscal year, June 30, 1872, the Quartermaster Department carried 17,448 iron bunks and 1,745 individual bed-slats on its inventory of stores. Their influence on other items of supply was remarkable. For the first time in its history, the Army had in stock more, in fact twice as many, single as double bedsacks, and almost ten times as many single mosquito bars as doubles. The following year the inventory had grown to include 3,939 slats, 27,277 iron bunks, and 1,080 "bed steads," with single bedding still greatly outnumbering double bedding. By that time the Army was well supplied with iron bunks, although in fiscal 1874 it purchased an additional 6,993, together with 8,784 sets of slats.²⁹ The following year a new bunk entered the inventory.

All was not well with the Composite bunk. The company, its fiscal 1873 contract in hand, now held a monopoly on the Army's bunk supply. It may have achieved that position by cutting its price, hoping to make up the loss by altering production standards. In October 1872 the firm's vice-president, Irah Chase, proposed certain changes for the bunk. He wanted to substitute a new chill in place of the shield on the head and foot trestles and to omit the four short corner rods at the bunk ends. This new version of the bunk, he promised, would be "equally strong in every respect and will enable us to make and furnish them without a loss to ourselves and be a savings to the government . . ." Asking for a quick approval of changes, he said the company would guarantee every

bunk against breakage. He got a quick response from Meigs, but not what he wanted. Denying the requested alterations, the quartermaster general pointed out the legal questions such a step would raise, coming as it would after the contract had been let, and held Composite to contract specifications. In 1873 the company issued an advertisement for the revised design, claiming that it had been adopted by the Army--a falsehood.³⁰

Terminology had also begun to cause confusion. The bunk in production since November 1871 had been called the "Chase" by the Quartermaster Department, while the company termed it the "Composite," which had been the name of the earlier model. By the summer of 1873 the proliferation of names tossed around--"Pipe," "Chilled Patent," and other labels--was baffling. For the quartermaster general, as for the King of Siam, it was all "a puzzlement." He asked the company for clarification. Chase outlined the history of the product, and said that the first bunk was the "Pipe Composite" bunk with horseshoe corner braces. That model had been abandoned and replaced with the "Chase" bunk (the mass production model), which the company now called the "Composite bunk." That name was retained thereafter.³¹

Bed slats also caused some difficulties in the early years, chiefly because they were not furnished with the bedsteads but were to be manufactured at the military posts. After receiving the 1871 proposals, Meigs had decided this was a more cost-effective method.³² In 1873 the Quartermaster Department directed that the slats be made of dressed 1-inch hardwood. Assistant Quartermaster General James Gillis objected to that on the grounds that it would be difficult to retain a full-inch thickness if the boards were dressed on both sides. He proposed that rough hardwood be specified.³³ What was actually used probably varied considerably from post to post, depending upon materials and facilities available.

Also in 1873 the chief quartermaster of the Department of Texas objected in almost sarcastic terms to the fact that the bunks were shipped to the posts without slats. At several of the posts in his department there were

no materials available with which to manufacture slats; in such circumstances, he suggested, the bunks might just as well remain in the depots. He asked that bunks and slats be shipped together, and the Quartermaster Department's annual inventories show that there was some procurement of bed slats during the 1870s.³⁴

After so many years of inaction and indecision, the Quartermaster Department made remarkable progress in distributing the new bedsteads to the Army. In his annual report for 1873 Meigs was able to report with considerable satisfaction that almost all military posts had been supplied with the new bunks.³⁵ In his Report on Hygiene in 1875 Dr. Billings was "glad to say that the double and two-story wooden bunks are now very nearly abolished . . ."³⁶ They were not all gone, of course, for Billings' report showed them still in place at 11 posts,³⁷ and some of the relics survived here and there for many more years. As late as 1939 double wooden bunks in two stories were in use for prisoners in the guardhouse at Fort Totten on Long Island.³⁸

It would seem that the history of army bunks before 1880 was concluded by 1874, but it was not. In acting with haste to compensate for years of neglect, Meigs had first distributed an inferior product, his Barrack bunk. By 1874, although no more Barrack bunks had been purchased since fiscal 1872, many remained in use. But the Army came to regret the haste with which it also had adopted the slightly better Composite bunk.

In May 1872 H. B. Coyle of Philadelphia received a patent for an "improvement in bedsteads." His invention was a folding, iron-framed cot with a canvas trampoline bed.³⁹ That model evidently was never the subject of serious consideration for the Army, but two years later Coyle's Washington agent brought a wholly new army bunk to Meigs' attention and the quartermaster general was very favorably impressed.

Coyle's bedstead had a number of advantages over the Composite. The weight of his model was 32 pounds with slats, as against 61 pounds for the Composite bunk. Even closer to the War Department's heart, Coyle's

bunk was cheaper. Coyle had bid unsuccessfully on an earlier contract, but he now believed that his bid had been too high and that he could provide his bunks galvanized without slats at \$3.75 per copy in mass production. "I think that the Contract has been properly awarded [to Composite]," Meigs told the secretary of war, "But this bunk is so much lighter and . . . so much cheaper, that it deserves a trial to determine its capacity to bear the rough usage of the Barrack." He recommended that 200 be purchased and tested at designated posts. On September 14, 1874, the secretary granted approval⁴⁰

Meigs described the bunk's parts and its dimensions as follows:

- Side rails, 1-1/16 inch gas pipe
- Uprights, 13/16 inch gas pipe
- Head and foot rails, 1-1/16 inch gas pipe
- Outside width, 31 inches
- Extreme length of side rails, 79 inches
- Upright, 23-3/4 inches
- Weight with slats, 32 pounds

On September 18, 1874, Meigs directed his Philadelphia office to buy 200 bunks (without slats) from Coyle at \$4.25 each (Coyle had said that he could not produce them as cheaply in lots of 200 as in quantities of 2,000), together with two sets of slats to be used as standards for manufacturing others. The Quartermaster Department would specify later where the bunks were to be sent for testing. "The points in which information is particularly desired," Meigs explained, "are: Suitableness for use as Army Bunks; are they strong enough? Are they as good or better than the bunks made by the Composite Iron Company of New York? What improvements, if any, can be made on them?"⁴¹

In informing Coyle that the department would purchase 200 of his "galvanized Iron Bunks," Meigs warned of one needed improvement: "The couplings in the sample exhibited to me were not as stout as they should be; they should be made stronger." But he acknowledged that Coyle's sample had been quickly assembled only for review and was not meant to be the real thing.⁴²

The Coyle bunks were distributed in December 1874 for testing at the following posts, each receiving 20:⁴³

Fort Monroe, Virginia
Fort Adams, Rhode Island
Fort McHenry, Maryland
West Point, New York
Fort Whipple, Virginia
Fort Leavenworth, Kansas
Omaha Barracks, Nebraska
St. Louis Barracks, Missouri
Fort Columbus, New York City
Fort Snelling, Minnesota

Instructions from Meigs accompanying each shipment of the bunks explained his objectives in testing them for six months.⁴⁴

The results of the trials exceeded all expectations. The Coyle bunk received universally lavish praise. From Fort Columbus, an officer pronounced them "superior to any of the kind heretofore in use for comfort, cleanliness, and economy of space."⁴⁵ At Fort Monroe, an artillery company tested four of the bunks for six months, after which its captain reported:

I consider them to be more suitable for use in the Military Service than the Standard [probably the Composite] Bunk. The "Coyle" Bunk is lighter and more easily handled than the Standard Bunk; and when placed one upon the other the space between them is seven (7) inches greater than the Standard Bunk.⁴⁶

Another officer at Fort Columbus said that he had "found them, without exception, the best Army Bunks I have ever seen. They are light, easily handled, can be packed in small compass, and kept absolutely clean without difficulty. In addition, they are far more comfortable for beds and can be used as seats without injury."⁴⁷ Yet another officer claimed:

For the following reasons, they are in my opinion, the best bunks now in use. The slats cannot warp and bend out of shape, as those now generally in use do. The side rails keep the bedsack in place and prevent the occupant from sliding off the bedsack. They occupy less space in the squad-rooms. They are strong enough for all practical purposes, and at the same time light and easily handled, and they are easily kept clean.⁴⁸

Meigs could not fail to be persuaded. In March 1876 he asked a board of officers to consider the Coyle bunk and its possible adoption for army use. The jury brought in a favorable verdict:

The Board regards with much favor the "Coyle" Army bunk of the pattern shown in the papers submitted by the Acting Quartermaster-General. It is believed to be entirely suitable for Army use, and better in some respects than the bunks of other kinds heretofore furnished. It is thought, however, that a foot-board the same as the headboard should be added. With this improvement, the Board recommends that it be hereafter supplied the Army, provided it can be purchased as low or lower than the bunk made and furnished by the Composite Iron Company, of New York. The agent of the "Coyle" bunk submitted a new pattern of Army bunk which he regards as an improvement over that submitted by the Acting Quartermaster-General, but the Board, while recognizing its greater compactness and portability, does not regard it as favorably.⁴⁹

On April 21, 1876, "the Coyle army iron gas-pipe bunk [was] admitted to competition in future contracts,"⁵⁰ with the changes recommended by the board of officers. The Army had finally found a soldier's bedstead that perfectly suited its desires. But it was too late, because the troops were unhappily supplied almost entirely with the earlier models. Future contracts were only to be incidental and for small quantities for many

years, so the Coyle army bunk, the bunk the Army at last realized it really wanted, was destined never to become a common fixture in barracks. Although the detested wooden bunks were virtually extinct, the Army through its clumsy best efforts still forced its men to sleep on beds that it had to admit were inferior to what could have been furnished.

With Meigs probably regretting his hasty distribution of the Barrack and Composite bedsteads, the last acts of the army bunks' history before 1880 were played out by the persistent W. B. Johns. By the mid-1870s he had become a thoroughgoing nuisance to the Quartermaster Department. He claimed repeatedly that further payments were due him under the pre-Civil War agreement regarding his bunk. He also asserted that the Barrack, Composite, and Coyle bunks infringed on his patent; he even continued to invent new bedsteads, which he proposed to sell to the Army. But by 1875 he had so tried the quartermaster general's patience that even his offer to provide bunks at the remarkably low price of \$3.00 was dismissed out of hand. As for Johns' demands for royalty payments, which he kept making through the 1880s, he was told repeatedly that he had no case.⁵¹

Notes

1. ARQMG 1867, H. Ex. Doc. 1, 40 Cong. 2 Sess., pt. 1, pp. 544-45.
2. Rufus Ingalls to D. H. Rucker, 20 Jan. 1868, QMConFile--Bunks, RG92.
3. "Proceedings of a Board convened for the Purpose of examining and reporting upon an iron bedstead invented by Bvt. Brig. Genl. H. D. Wallen . . . ," QMConFile--Bunks, RG92. I found no drawings or other record of this bedstead.
4. Meyers, Ten Years in the Ranks, 2, describes them as follows: "There were six iron double bedsteads in the room and a single bedstead for the corporal The double bedsteads were made so that one-half could be folded up over the other half when not in use." Apparently the same bunks were in the same room (a musician boys' training barrack) 10 years later in 1864, although the reporting source is unreliable on this particular point, since his account of Governors Island plagiarizes Meyers. Major Alson B. Ostrader, An Army Boy of the Sixties: A Story of the Plains (Yonkers-on-Hudson, NY: World Book Co., 1924), 14-15.
5. E. D. Townsend to Quartermaster General, Jan. 11, 1868, and Sacket to Friend McFerran, Jan. 8, 1870, in QMConFile--Bunks, RG92. There are good drawings of this most impressive contraption in the same file, but they are not offered in this report because Snead's bunk was never seriously considered for adoption.
6. Lieut. Federick Fuger to Ingalls, Nov. 20, 1867, and numerous endorsements through Feb. 1868, QMConFile--Bunks, RG92. Rufus Ingalls, a native of Maine, graduated from West Point in 1843, served in the rifle regiment and the dragoons until joining the Quartermaster Department in 1848. He remained in the department until 1863, when he was appointed a brigadier general of volunteers. He earned brevets in both the Mexican and the Civil Wars. He returned to the Quartermster

Department in 1866, first as lieutenant colonel and deputy quartermaster general, later that year as colonel and assistant quartermaster general. He became quartermaster general February 23, 1882, succeeding D. H. Rucker, who had occupied the post 10 days, and retired July 1, 1883. Ingalls died January 15, 1893. Heitman, Historical Register, 1:562.

7. Ingalls to Meigs, Nov. 5, 1869; James A. Ekin to Meigs, Nov. 13, 1869; Note, J. D. Bingham (to Meigs?), Nov. 4, 1871; all in QMConFile--Bunks, RG92. The "Pattern bedstead" probably was the prototype "Barrack bunk" designed by Meigs.

8. C. W. Thomas to D. H. Rucker, Sept. 10, 1869, QMConFile--Bunks, RG92. The question apparently was referred to Washington, where it received no action. The plan and specifications appear in appendix D.

9. Risch, Quartermaster Support, 488; Billings, Report on Barracks and Hospitals, passim. The inventories were presented in ARQMG each year.

10. Risch, Quartermaster Support, 488.

11. This sketch, very rough and preliminary, is in QMConFile--Bunks, RG92. The printed final drawings of the Barrack bunk were the actual patterns for the bunks manufactured later. See appendix F.

12. Note, Meigs to Bingham and Ludington, Sept. 25, 1871, QMConFile--Bunks, RG92. Meigs saw some confusion stemming from General Order 22 of 1854, which substituted iron bedsteads for the wooden bunks, which par. 974 of the 1841 regulations addressed as fixtures of the barracks. That, he believed, should not apply to iron bedsteads, which were actually a part of the equipment of the garrison, not integral to the buildings, and therefore should be purchased with camp and garrison equipage funds. (It should be recalled that Jesup, in asking for appropriations for the Johns bunks in fiscal 1859, had put them with camp and garrison equipage, although his request was not granted. See chapter 6.) In any event the first large purchases of the

new bunks--both those in 1871 and the two big contracts for fiscal 1872 signed in November 1871, it would seem--were paid for from the barracks and quarters account. The reclassification probably took effect in fiscal 1873.

13. Meigs to Secretary of War, July 24, 1871, with endorsement, QMConFile--Bunks, RG92.

14. Chief Quartermaster, Military Division of the South, to Meigs, Nov. 21, 1871, QMConFile--Bunks, RG92. They were made by Sned of Louisville.

15. M. C. Miller to Meigs, Oct. 17, 1871, QMConFile--Bunks, RG92. This is discussed below. Where these bunks went is not recorded, but it is reasonable to believe that some or all of them went to the New York Harbor forts.

16. Copies of both notices and of the drawings are plentiful in QMConFile--Bunks, RG92. See also appendix G. Great caution should be exercised in basing reproductions on the various drawings in existence, for Composite kept revising its design in its advertisements. As if that were not enough, the bunks actually purchased, at least after November 1871, were not of the design advertised by the army. Appendix G sorts out the three Composite bunks and their chronology.

17. "Abstract of Bids . . . October 31, 1871," QMConFile--Bunks, RG92.

18. M. C. Miller to Meigs, Oct. 17, 1871, QMConFile--Bunks, RG92.

19. Copies of letters transmitting the contracts to the Chief Clerk of the Returns Office, Department of the Interior, Dec. 8 and 16, 1871, QMConFile--Bunks, RG92. The contracts are missing.

20. ARQMG 1871, 127. Note that the description of the revised Composite bunk is inaccurate, since the legs were no longer of gas pipe.

21. "Bunks Authorized by the Brks Bd during 1871," QMConFile--Bunks, RG92. This list goes in the order of the purchase contracts; I have reorganized it by bunk-type in the text. It does not include the 1,600 Miller bunks.

22. It should be noted here that A. Berle Clemensen, Historic Furnishing Study, Enlisted Men's Barracks, HB-21, Fort Davis National Historic Site (Denver: National Park Service, 1978), assumes that only Composite bunks were present at that site. But the large distribution to Texas suggests a full supply of Barrack bunks to all posts, including Fort Davis. HB-21, the barracks treated in the study, was one of only two in use at Fort Davis in 1871-72, and since bunks remained by regulation in barracks, the Barrack model would have continued in use in HB-21 until taken out of service. They may have been worn out within a few years, but that should be determined from the post's quartermaster records. It should be noted also that the Fort Davis study assumes that the Composite bunk can always be modeled on the company's "No. 9" drawing. The subject is more complex than that, as will be seen below. See also appendix G.

23. ARQMG 1872, 142.

24. B. J. Strong to Chief Quartermaster Department of Texas, Dec. 29, 1871, QMConFile--Bunks, RG92.

25. Capt. Samuel T. Ferris to Lieut. J. H. Sheelz, Dec. 11, 1871, and Snead & Co. to Chief Quartermaster Military Division of the South, Jan. 8, 1872, QMConFile--Bunks, RG92. See appendix F. This was a predictable and rather obvious design error, somewhat surprising for the man who had designed the dome on the U.S. Capitol.

26. Snead & Co. to Lieut. Col. James A. Ekin, June 8, 1872, QMConFile--Bunks, RG92. "Steel" is the word used in the letter, not "iron." It is likely that fittings and screws were of the former, and framing of the latter.

27. James A. Ekin to Quartermaster General, June 11, 1872, QMConFile--Bunks, RG92. The bolt question is addressed in appendix H, although the record is sketchy.

28. ARQMG 1872, 142. Compare this price with Composite's bid of \$5.50.

29. ARQMG 1873, H. Ex. Doc. 1, 43 Cong. 1 Sess., pt. 1, p. 158; ARQMG 1874, 154, 160.

30. Chase to Meigs, Oct. 7, 1872, and Meigs to Chase, Oct. 10, 1872, QMConFile--Bunks, RG92. Although the company distributed flyers claiming that the new "No. 10" model was adopted by the War Department in 1873, that was not true. All bunks purchased from Composite from November 1871 to the end of the decade were the "No. 9" model, which the specification eventually adopted also required. The "No. 10" model did not appear in barracks until the 1880s, but it was the only model acquired during the 1880s. See appendix G.

31. Chase to Meigs, June 16, 1873, QMConFile--Bunks, RG92. In the same letter Chase added that the firm had received no complaints about the bunks it had supplied to the Army. This exchange might be the basis for the company's claim that the Army had adopted the "No. 10" model in 1873. Actually, it adopted only the name "Composite."

32. "Q. M. General's Notes Nov. 1, 1871," QMConFile--Bunks, RG92.

33. Gillis to Col. D. H. Rucker, Nov. 4, 1873, QMConFile--Bunks, RG92.

34. S. B. Holabird to Col. D. H. Rucker, Apr. 25, 1873, QMConFile--Bunks, RG92. The men there continued to use wooden bunks; why those were not cannibalized for slat stock was not mentioned.

35. Risch, Quartermaster Support, 488.

36. Report on Hygiene, xviii.

37. Ibid., passim. None of the 11 posts is in the national park system today. They were Fort Gratiot, Michigan; Fort Stockton, Texas (where, incidentally, the metal bunks were delivered without slats and there was not a tree for many miles with which to make them; this sparked the letter from Holabird identified in note 34, above); Santa Fe, New Mexico; Fort Wingate, New Mexico; Fort Fred Steele, Wyoming; Camp Hancock, Dakota; Fort Boise, Idaho; Sitka, Alaska; Camp Apache, Arizona; Rio Verde Indian Reservation, Arizona; and Camp Verde, Arizona.

38. Joseph R. Blaise, interview with the author, Springfield, Va., Oct. 30, 1981. Blaise, a member of the Pearl Harbor Survivors Association and a veteran of World War II in the Pacific, enlisted at Fort Totten in 1939 and later transferred to Hawaii, where he served first in the Coast Artillery, then in the Army Air Force. He said the guardhouse bunks were identical to one shown in prints of a set found some years ago at Fort Mifflin, Pennsylvania, and now owned by the National Park Service; Prints courtesy of NPS, Harpers Ferry Center. Incidentally, Blaise observed the bunks as a guard, not as a prisoner.

39. Drawing for patent 127,312, in QMConFile--Bunks, RG92. See appendix H.

40. Meigs to Secretary of War, Sept. 9, 1874, and endorsements, QMConFile--Bunks, RG92. This is the source for the descriptive information that follows. The lighter weight would significantly reduce shipping costs.

41. Meigs to Col. L. C. Easton, Sept. 19, 1873, QMConFile--Bunks, RG92.

42. Meigs to H. B. Coyle, Sept. 18, 1874, QMConFile--Bunks, RG92.
43. (Unsigned, QMG Office) to Col. L. C. Easton, Dec. 10, 1874, QMConFile--Bunks, RG92.
44. Meigs to "Sir," Dec. 10, 1874, QMConFile--Bunks, RG92. The Quartermaster Department also developed specifications for the bunk, probably prepared by Coyle. A handwritten copy in the QMConFile--Bunks, RG92, is dated "1874 Oct." and marked on the back as received Jan. 22, 1875. See appendix H.
45. Maj. C. E. A. Crofton to QMGen USA, Feb. 2, 1876, QMConFile--Bunks, RG92. It took much longer than six months for most of the reports to arrive.
46. Capt. James H. Piper to QMGen USA, Aug. 24, 1857, QMConFile--Bunks, RG92.
47. Lieut. C. S. Roberts to Post Adjutant, Ft. Columbus, Jan. 19, 1876, QMConFile--Bunks, RG92.
48. Lieut. William Auman to QMGen USA, Jan. 23, 1876, QMConFile--Bunks, RG92. Yet another example of the response: "Taken altogether, I consider that they possess every advantage over any bunk yet seen in use in the Army." Lieut. J. S. King to QMGen USA, Jan. 26, 1876, same file.
49. "Report of a board of officers reviewing the Coyle army bunk proposed for adoption, Philadelphia, Pa., March 16, 1876," QMConFile--Bunks, RG92. This report was also published in ARQMG 1876 (op. cit.), 225. I could find nothing further on the second bunk mentioned.
50. ARQMG 1876, 129. The specifications were printed in the following year's ARQMG. See appendix H for the bunk as tested and the bunk as finally adopted.

51. The correspondence generated by and to Johns and his lawyers is voluminous. For points raised here, see Johns to Rufus Ingalls, Aug. 16, 1875, and Meigs to Johns, Nov. 19, 1877, QMConFile--Bunks, RG92. The bunk offer referred to was for one closely resembling the Barrack pattern. Incidentally, if the Y-shaped feet were covered by the patent (not likely, or the lawyers would have made an issue of it), Johns may have had a point. They were probably copied by Meigs for the Barrack bunk (and probably also by Ingalls and Wallen for their designs), and subsequently by Composite for their mass production model. See appendix E.

THE EXPENSE OF PROVIDING THE ARMY WITH STOVES IS VERY GREAT
(1866-1880)

Bunks were not the only subject troubling the Quartermaster Department after the Civil War. The Army's continued failure to establish a policy on heating for barracks and other buildings had become an expensive habit to support. Open fireplaces and poorly designed stoves were hazardous to the flammable buildings at most posts, and they were prodigious consumers of fuel. In 1866 Meigs reported that the Army burned 113,497 tons of bituminous coal and 86,808 tons of anthracite, for a total of 200,305 tons that had to be purchased on the open market and delivered to posts that year. He could not report the consumption of wood in 1866 but said that "by far the greater part" of it was cut by the troops rather than purchased by contract.¹ The fuel-supply burden remained high in the following years, even as the Army became smaller, as the issues of wood and coal for selected years show:

	<u>Wood</u>	<u>Coal</u>
1868.....	119,973 cords	32,425 tons
1870.....	125,762 cords	27,118 tons
1871.....	124,372 cords	28,678 tons
1872.....	115,995 cords	28,144 tons

If there was any brake on the Army's fuel consumption, it was that, without direction from above, departmental quartermasters were buying stoves on the civilian market in response to demands from the posts. As with the early purchases of iron bedsteads, there was no standard and no consistency from one place to another, and the quartermaster general had no idea of what was being purchased with his appropriated money. For an entire decade after the Civil War, the only serious effort by the Quartermaster Department to find standards for the heating of buildings was the trial of the "ventilating double fire-place" promoted by Dr. Billings. On the recommendation of a board of officers, in 1871 the department had 25 of them manufactured "for use and trial" at various posts. But the idea proved not as good in practice as on paper, and they were withdrawn from service after a year or two.²

In 1875, after watching the money spent on stoves increase each year and with no idea of what was being purchased or even how many of the stoves requested were replacements for fragile models broken in use, Meigs called a halt. On April 8 he directed

that some general pattern of cooking and heating stoves and ranges should be adopted and the number to be supplied to officers and troops prescribed by regulation; that the stoves of no particular manufacturer should be adopted, but that general specifications of size and construction, of plain, substantial, and convenient heating and cooking stoves, adapted to the use of bituminous and anthracite coals, and wood, should be drawn up, published, and followed hereafter.

Ordering a board of officers to assemble in Omaha to implement that directive, Meigs explained to its president that he believed that the department was receiving "excessive requisitions" for stoves and wanted to put some limit on them. He also suggested that there probably was unnecessary loss from breakage of cast-iron stoves and that wrought iron might be more economical. "It should be borne in mind," he added, "that the expense of providing the Army with stoves is very great."³

By the end of the fiscal year the board had not yet reported. Meanwhile, Meigs investigated the history of the problem and discovered that it had been recognized for a long time. His predecessor had tried without success to get special appropriations for stoves and to establish a policy on their distribution. Jesup took his case to the secretary of war in 1857, arguing the necessity for stoves and for formulating a policy on them. Although his proposals would have saved money, he got no response.⁴

When the board finally reported in November 1875, the results proved to have been worth waiting for. They also demonstrated that a careful and systematic approach to a supply problem could be more productive than the hurried manner in which iron bedsteads had been adopted--a lesson not lost on the Quartermaster Department. The stoves designed by the

board gave good service for many years and remained unmodified into the 1880s; the first change was only a minor technical alteration of the grate in one of them.

The board proposed a number of models of stoves for heating and for cooking, adapted to meet all ranges of need. The heating stoves were designated "Army cast-iron wood heater," numbers 1, 2, and 3; "Army wrought-iron wood heater," numbers 4 and 5; "Army cast-iron coal heater," numbers 6 and 7; and the "Army parlor heater." The cooking ranges were "Army cooking range," numbers 1 and 2.

The board also proposed a supply table. Each company was to get "two large stoves in dormitory, one large stove in each the mess-room and day-room, one small stove for each of the two rooms for non-commissioned officers, and one small stove for the library, and one cooking stove or range sufficient to cook its food," making a total of seven. The distribution of stoves in hospitals allowed some discretion to the surgeon and post commander, and one heating stove each was allowed for each guardhouse and "chapel, reading or schoolroom upon requisition approved by the commanding officer." With only minor technical amendments, the quartermaster general accepted the board's report in whole, and it was made regulation by the secretary of war and promulgated in May 1876.⁵

On August 28, 1876 the Quartermaster Department solicited bids for the manufacture of 160 of the heating stoves (20 of each type) and 40 of the cooking ranges (also 20 of each type). Interestingly enough, the Ordnance Department of the Army was the low bidder on the cast-iron heaters, receiving a contract to produce 100 (20 each of numbers 1, 2, 3, 6, and 7) at Rock Island Arsenal, Illinois. Other contracts went to Asa Snyder and Company of Richmond, Virginia, for 60 heaters (20 each of numbers 4 and 5 and the parlor heater), and William Miller of Cincinnati for 40 ranges (20 each of numbers 1 and 2). The department later bought 72 more ranges (22 number 1 and 50 number 2) from Miller, and 75 more heaters (15 of each type) from Rock Island Arsenal. Most of the 235 heating stoves and 112 ranges had been distributed by late 1877, and Meigs avowed, "The success of these stoves and ranges in the Army appears to be well assured."⁶

In 1878 the Army bought no cooking ranges because the previous year's purchases exceeded requisitions and the Quartermaster Department had a surplus on hand--which suggests that the Army had managed to supply itself well with ranges of some sorts before there was any definite policy on the subject. However, the Rock Island Arsenal produced 201 heating stoves (35 number 1, 31 number 2, 35 number 3, 50 number 6, and 50 number 7) that year, establishing itself as the Army's regular supplier.⁷

In June 1880 Meigs ordered 140 more stoves from Rock Island, to be delivered in fiscal 1881. But deliveries that year actually totaled 256 cast-iron heating stoves, with an additional 276 ordered for the following year.⁸ As older nonstandard stoves wore out, they were replaced with the new army standard, and probably by the mid-1880s most barracks were furnished with general issue stoves of the model appropriate to each room.

While the establishment of the stove standards stopped waste in unregulated stove purchases, whether they reduced the fuel burden is questionable, as the following table of fuel issued the Army shows:⁹

	<u>Wood</u>	<u>Coal</u>
1877.....	138,099 cords	40,087 tons
1880.....	108,074 cords	33,277 tons
1881.....	120,288 cords	39,386 tons

The distribution of stoves accomplished something else. Where they replaced open fires, they transformed dim, smoky barracks into forbiddingly dark dungeons.

Notes

1. ARQMG 1866, H. Ex. Doc. 1, 39 Cong. 2 Sess., 59. The distribution of coal purchased is at least some clue to the relative proportions of anthracite and bituminous grates, stoves, furnaces, and boilers in the Army. Most of them were probably in coastal areas. I am uncertain whether the reported figures reflect fuel consumed at arsenals or on army ships, but I doubt that they do after 1866. The high consumption of coal that year might include military railroads in the South. The fuel consumption table provided in the text is drawn from ARQMG 1868, 815; ARQMG 1870, H. Ex. Doc. 1, 41 Cong. 3 Sess., pt. 1, pp. 146-47; ARQMG 1871, 125; ARQMG 1872, 139.
2. This was discussed earlier. See Billings, Report on Barracks and Hospitals, vi-xiv; Report on Hygiene, lvii; M. I. Ludington to Meigs, Sept. 25, 1871, printed in ARQMG 1871, 139.
3. Ludington to Meigs, Aug. 14, 1875, in ARQMG 1875, H. Ex. Doc. 1, 44 Cong. 1 Sess., 250-51; Meigs to Col. J. C. Davis, May 6, 1857, and Meigs to Secretary of War, Apr. 8, 1875, ARQMG 1876, 267-68, 269.
4. Jesup to Secretary of War, Jan. 26, 1857, copy in ARQMG 1876, 269.
5. The publication was without drawings in ARQMG 1876, 261-65, and possibly a separate booklet. The 1876 publication is reproduced in appendix C. It was republished with illustrations in 1882 in U. S. War Department, Quartermaster General's Office, Specifications for Means of Transportation, Paulins, Stoves & Ranges, and Lamps & Fixtures for Use in the U. S. Army (Washington: Government Printing Office, 1882). The drawings in appendix C are copies of those in the 1882 publication, from Don Rickey, Jr., and James W. Sheire, The Cavalry Barracks, Fort Laramie, Furnishing Study (Washington: National Park Service, 1969).

6. ARQMG 1877, H. Ex. Doc. 1, 45 Cong. 2 Sess., pt. 1, p. 292.
7. ARQMG 1878, H. Ex. Doc. 1, 45 Cong. 3 Sess., pt. 2, p. 350.
8. ARQMG 1880, H. Ex. Doc. 1, 46 Cong. 3 Sess., pt. 2, p. 322;
ARQMG 1881, H. Ex. Doc. 1, 47 Cong. 1 Sess., pt. 2, p. 225.
9. Derived from ARQMG 1877, 184-85; ARQMG 1880, 321; ARQMG 1881,
224.

TO MEET A WANT FELT IN THE ARMY
(1866-1880)

The unfortunate exercise that culminated in the adoption of the Coyle army bunk demonstrated to the Quartermaster Department the need for more thoughtful and systematic procedures for supplying the Army's material needs. The effort to develop standards for stoves showed how it could be done.

The department, like the nation, was headed anyway in the direction of standardization--and bureaucratization and central control. Before the 1870s most items purchased by the department met standards set forth in contracts by its purchasing officers, mostly in Philadelphia, and quality was ensured chiefly by inspection on delivery. But American industry had grown more mechanized and increasingly competitive. More firms around the country wanted part of the Army's business. To facilitate competitive procurement and at the same time insure consistent quality in goods purchased, after 1870 greater numbers of specifications were promulgated, to the extent that they became routine fixtures in the annual reports of the quartermaster general. That procedure made it possible for firms as widely separated as New York and Louisville to offer to supply, for instance, the same bunks.

For the first time in many years, new specifications for the army blanket were issued in 1873 and amended in 1876; in both cases they insured that blankets, whether bought in New York or in California, would be identical when delivered.¹ The fact that each specification was "adopted by the Secretary of War" gave it the force almost of law.

Beginning in 1875, the Quartermaster Department consolidated all existing specifications for items of procurement,² a systematic procedure that would eventually lead to official supply manuals. The specifications compiled included not only those promulgated in Washington, but a substantial number that bore the notation, "Furnished from Philadelphia

Depot by Col. Easton March 2nd, 1875." The last trace of Callender Irvine's administrative influence thereby evaporated, for the specifications for even the smallest items were now controlled in Washington and finally became a matter of official record. It must be supposed, however, that a large share of the specifications transmitted by Easton had been used in contracts at Philadelphia for many years.

The specifications compiled in 1875 and thereafter reflected another interesting development--the number of separately identifiable contents of soldiers' barracks was on the increase. Those transmitted from Philadelphia were for traditional things: pots, iron; kettles, camp; books, company order; books, company descriptive; books, company morning report; books, company clothing account; blankets, rubber. But the next year the Army published specifications for things formerly regarded as mundane, or not previously supplied: stencil sets, scrubbing brushes, iron bunks, brooms and brushes, and so on. The Army was now providing more to its men, and it was exercising ever greater control over what they got as well as what they did with it.

Specifications continued to reflect expanding furniture inventories. In 1878 specifications appeared for barrack chairs, a new item of supply. The next year they showed growing attention to the quality of merchandise issued in quarters. Along with specifications for the new pillow sacks, the Quartermaster Department revised long-standing requirements for old things like bedsacks and mosquito netting.

By that time the Army's policy on furnishings for barracks, which for almost a century had been little more than simple concurrence with customary practice, was beginning to evolve. In the future, practice would be governed by policy, and the systematic development of policy would itself become customary. That merely reflected a more fundamental evolution in the military establishment. An Army that had long outfitted itself with handicrafts was, like the nation it served, becoming industrialized.

With the bed central to the soldier's accommodations, items of bedding continued to be important. Throughout the 1870s the two basic parts of the soldier's bedding remained the 5-pound gray army blanket, issued one each in the first and third years of enlistment, and the bedsack. But the introduction of the single bedsteads worked remarkable changes on the latter, an old army institution. Manufacture of double bedsacks ceased in 1878, and in fiscal 1879 only 106 of them were issued, as compared with 6,504 singles.³ The same thing happened with single and double mosquito bars.

In 1875 the growing attention the Army paid to the men's sleeping arrangements led to this announcement:

To meet a want felt in the Army, the Secretary of War, on 18th September 1875, on recommendation of the Acting Quartermaster General, authorized issue of pillow-sacks to the troops. They are made from a very large stock of shelter-tents in store. Their issue has made it necessary to increase the monthly allowance of straw to enlisted men [from 12 to 16 pounds per man].⁴

It was not much--especially when that same year the Surgeon General's Office recommended that wire mattresses, hair pillows, and sheets replace the bedsacks⁵--but it was a step in the right direction. Issue of more civilized forms of bedding finally began in limited amounts in 1884.⁶

Other things arrived in army buildings in the 1870s. A standard padlock was adopted in October 1873, and within a year Meigs reported the distribution of 1,122 to various posts requesting them. It was, he said, "strong, durable, and secure," and was called the "Scandinavian, or jail" padlock.⁷

In 1875 came the Army's first official footlocker. The Quartermaster Department was directed "to provide in all permanent barracks a box or locker 24 inches in length, 12 inches in breadth, and 10 inches in height, for each soldier to store his dress uniform and extra clothing; the boxes

to be permanent fixtures of the barracks. They are being supplied upon the requisition of the proper officers." During fiscal 1875 a total of 568 of them were supplied to various posts, but the restriction to permanent barracks retarded general issue to the whole Army.⁸

The first general issue of an item of real furniture other than bedsteads started during fiscal 1878. That was the barrack chair. Meigs reported that because his department was under

instructions to provide chairs for use in barracks by soldiers, who have heretofore been accustomed to sit on benches or boxes or their beds, arrangements have been made to manufacture a sufficient supply for the barracks and posts east of the Rocky Mountains, at the military prison, at a cost of \$1 for each chair. To supply the distant posts beyond the Rocky Mountains contracts have been made on the Pacific coast, at \$1.66-2/3 each chair.

The chair adopted as a model is a strong, substantial wooden chair, with wooden molded seat. It is easy, durable, and cheap, and will add much to the comfort of troops, and at a very moderate expenditure.⁹

As with other new items of supply after 1875, detailed specifications and a design for the chairs were promulgated, so that any one was identical to any other. The supply table was also established by general order. The Quartermaster Department would provide one chair to every noncommissioned officer above the corporal, and six for every 12 enlisted men of all other grades. During fiscal 1878 the department ordered 10,912 from the U. S. Military Prison at Fort Leavenworth, Kansas, and an additional 2,000 chairs for the Military Division of the Pacific were purchased by contract in California. The next fiscal year the prison furnished 7,777 more chairs at 95-1/2 cents each and in fiscal 1880 an additional 1,915.¹⁰

At the very end of the 1870s the distribution of reading materials to the troops began. In 1877 Secretary of War George McCrary not only initiated the actions that resulted in the establishment of post schools and libraries (first authorized in 1866) but expressed himself as well on what the men should read. In his opinion, all posts should be regularly supplied with volumes of the classics and the best current literature, including newspapers and magazines, "and these publications should be regularly sent to each company in the Army, whether at regular and permanent posts or not." As a result, by fiscal 1880 the Quartermaster Department was spending about \$6,000 a year to supply post schools and libraries with books and periodicals.¹¹

Because the majority of the Army's buildings were of wood, they were subject to damage or destruction from fire. Barracks especially were literal tinderboxes, crammed as they were with wooden fixtures, straw bedding, and cloth goods, heated by fireplaces and stoves installed by amateurs, and lit by candles or unauthorized lamps that sometimes seemed designed to explode. In the years following the Civil War the losses from fires at military posts increased, as did official worries about the problem--the fire danger was actually the principal reason that sentries were posted. Large fire engines of various types began to receive wide distribution, but they did not meet the need. It was desirable that small fires be prevented from growing into large ones, and for that purpose buckets and boxes of water and sand were routine fixtures in all army buildings, in particular those with stoves or fireplaces. But fires often began high on walls or in ceilings or attic spaces where faulty flues were most likely to ignite them. Such places were difficult to reach quickly, so some means of throwing water onto elevated fires was required.

American industry came to the rescue with the invention of soda-acid fire extinguishers. Beginning at least as early as fiscal 1870, possibly the year before, the Quartermaster Department distributed the Babcock patent fire extinguisher, manufactured in Massachusetts. At first the numbers were limited, but Meigs reported issuing 89 ("more" than the previous year) to 23 locations in fiscal 1871, including three to Fort Laramie, Wyoming. Through March 1873 only the Babcock product was issued;

after that date, others--identical to the original model, since they were of the Babcock patent and made under license--were bought from the Champion Fire-Extinguisher Company of Louisville, Kentucky. A total of 27 were distributed to posts in fiscal 1873.¹²

The Babcock fire extinguisher was a copper-jacketed model that, except for its exterior plumbing, closely resembled modern soda-acid extinguishers. But it was not ideally suited to the Army's need, because it was expensive and complicated to use, and it was not foolproof. A fire at Fort Buford in subzero temperatures in January 1871 burned out of control because the extinguishers were frozen. In addition, Babcock was a difficult company to deal with. The result was that up to 1873 fire extinguishers remained thinly scattered around the Army.¹³ At a post where there were only a few, they most likely would be stationed in guardrooms, since the guard of the day was supposed to be the initial fire-fighting force, especially at night. Others would be located around the post in accessible and well-advertised locations, especially near storage buildings.

In 1873 the firm of Hildreth and Johnson brought to Meigs' attention the "Johnson Forcible Hand-Pump," also advertised as the "fire assassinator." The device was simplicity itself, resembling nothing so much as a bicycle pump mounted in a wooden bucket, capable of shooting a stream of water 40 feet into the air. The company had managed to obtain the endorsement of Boston's fire marshal--who claimed that if one had been on hand in Mrs. O'Leary's barn, there would have been no Chicago fire--and Meigs was greatly impressed. He ordered a substantial number of them for testing, and by December 1873 had distributed them, together with instruction cards, to a number of posts, including Fort Davis, Texas.¹⁴

By that time Meigs apparently believed that he had found the perfect fire extinguisher, but he ordered technical trials anyway the next spring. The results of those tests showed that the "Johnson Hand Force-Pump," as it was called occasionally, "is quite as efficient in extinguishing flames as the chemical fire-extinguisher." It was adopted for use, and 214 were distributed in 1874, and an additional 756 in 1875. By late 1876 Meigs

could announce that nearly all posts held a supply of the chemical extinguishers, and literally all had the Johnson pumps. He asserted that the latter seemed to have saved more property from fire than the others, which cost six times as much. Oddly enough, it was only after the Johnson pump was completely distributed that its use was approved by the secretary of war.¹⁵

Notes

1. The details of specifications are discussed below, and the texts presented in the appendixes. ARQMG 1872, 141-42, and ARQMG 1877, 269, convey the new blanket specifications.
2. They appear in ROQMG, Miscellaneous Specifications, 1875-1884, RG92.
3. ARQMG 1897, H. Ex. Doc. 1, 46 Cong. 2 Sess., pt. 2, p. 281.
4. ARQMG 1876, 126.
5. Report on Hygiene, xviii.
6. Chappell, "Barracks Furnishings," 26.
7. ARQMG 1874, 187. This is the one new item of the period for which no specifications were issued; it was probably the product of one company, but there is little in the records on the subject.
8. ARQMG 1875, 197, 265. Boxes, chests, and lockers had occasionally been mentioned in the field in earlier years, but apparently they had no official standing as items of supply. Any in existence would have been made locally. Also, apparently no drawings of the new footlocker were prepared.
9. ARQMG 1878, 262. The design was replaced in the 1880s with one featuring a leather seat.
10. Ibid., 325-26; ARQMG 1879, 229; ARQMG 1880, 289. The establishment of the prison in the early 1870s was itself a significant reform in the treatment of soldiers under sentence of confinement. The institution still exists at Fort Leavenworth, although with changes of name and governance.

11. ARSecWar 1877, H. Ex. Doc. 1, 45 Cong. 2 Sess., pt. 1, p. vii; ARQMG 1880, 316.

12. ARQMG 1871, 125, 210-11; ARQMG 1873, 174-75.

13. ARQMG 1871, 125; F. W. Farwell to Meigs, Mar. 8, 1871, and accompanying freight receipts, QMConFile--Babcock, RG92. In 1871 the company somehow greatly offended Meigs by sending him two copies of an improved fire extinguisher without invitation or notice. For the fire extinguishers, see appendix L.

14. A substantial file on the Johnson pump (for which the Army never settled on a single name) rests in ROQMG, Correspondence Relating to Army Wagons, Annual Estimates, Purchase of Force Pumps and Padlocks, 1873, RG92. Advertising accompanies Hildreth and Johnson to M. I. Ludington, Sept. 26, 1873. Unfortunately, it seems that no copies of the instruction card have survived. That is regrettable, as they were probably fixed to walls at pump locations. Fort Davis, according to a list dated Dec. 8, 1873, received 12 cards--possibly implying that it received 12 pumps, although the record is not clear.

15. ARQMG 1873, 118; ARQMG 1874, 123, 187; ARQMG 1875, 251; ARQMG 1876, 131, 237. The purpose of the pumps was officially "in controlling and suppressing fires in their incipiency." In other words, small extinguishers attacked only small fires. Once a blaze got out of hand, heavier engines were required.

Since the Revolution, the only authorized source of illumination in the barracks of the United States Army had been candles. And even they remained, by regulation, in insufficient supply. The quarters were dim enough to begin with, but after stoves generally replaced open fireplaces, conditions were even worse. One observer in the 1870s said that the few scattered candles in barracks sufficed only "to render darkness visible." In 1880 an officer wrote that if the general of the army wished to know why enlisted men deserted in great numbers, "he has only to look into our dungeon barracks with the men huddled around the flickering flame of one or two candles. How many evenings would he or any officer spend in such a hole?"¹

The need for better light was as great as that for better beds. But this time American technology exceeded its own abilities. By the 1850s and 1860s new lamps were piling up in the Patent Office as new stoves had in earlier years. As they proliferated on the civilian market, inevitably some began to appear in barracks, hospitals, and guardrooms, occasionally with devastating results. The Army feared fire as much as it feared any human enemy, and in 1869 it issued an order outlawing the use of lamps burning volatile oils in all army structures. The only alternative it considered (but did not adopt) was for the Subsistence Department to add to the ration extra candles "of extraordinary size," and to supply lard oil and lanterns for guardrooms.²

The 1869 order caused a storm of controversy in the Army. It also was ambiguous, as officers were uncertain about whether it applied to their own quarters. So the following year the secretary of war directed the issue of General Order 17, which only confused things more, and finally General Order 42, which prohibited the issue or the use of "all varieties of Coal Oils" for illumination at military posts "except by commissioned officers in their quarters."³

But the subject would not rest, since the men wanted better lighting, and their officers supported them. Throughout the 1870s officers complained about the dimness of the barracks, repeatedly asked to be allowed to purchase lamps with company funds, or reported the successful and safe use of such lamps as were permissible--although what those might be, except for lard-oil types, was always in doubt. At Willets Point, New York, for instance, a company commander reported that his men were using the "Cleveland Safety Lamp (Metal)" burning "Astral" oil, but no one knew whether stabilized distillates like that should be allowed.⁴

The Subsistence and Quartermaster Departments both maintained a considerable interest in the possible adoption of lamps, chiefly because they were bombarded with complaints and requisitions from the officers. But they were unable to overcome their own fears that lamps were inherently dangerous. At the request of the commissary general of subsistence, in 1872 and 1873 the Corps of Engineers performed tests on a number of lamps burning a variety of fuels. Their technical report pronounced some of them safe and suitable of army use, but afterwards "and in accordance with the views of the Commissary General," the secretary of war declined to alter the policy promulgated in 1870.⁵

The effect of such a policy, however, was the same as the absence of policy on stoves. It might seem that lamps were forbidden, but there was no flat prohibition applicable to all lamps, at least not to those not using "mineral oil," which was how the Army termed distillate hydrocarbons. Lamps appeared here and there in defiance of regulations, and the pressure from officers and men mounted steadily. In 1877 the Subsistence Department felt it must review the entire question and concluded that some effort should be made to determine whether there was a safe lamp for the Army; the safety of those used without authorization certainly could not be guaranteed.⁶

The secretary of war succumbed the following year, appointing a board of officers to consider the lamp question. The officers had little difficulty in arriving at the conclusion that some better way of lighting barracks was needed to replace the candles. The standard issue of adamantine

candles, they pointed out, gave the average company about 15 pounds per month, or three candles per day to light the orderly room, squad rooms, mess room, and kitchen--certainly not enough, especially since the open fireplaces were mostly gone. In 1879 the board recommended the adoption of lamps. The secretary of war concurred, and directed the Quartermaster Department to conduct tests to develop lamps suitable for the barracks. After three types available on the civilian market were given highly technical evaluations, the department selected a brass lamp from the Manhattan Brass Company, adopting it in two styles--a two-lamp pendant model, and a single-lamp bracket type. Appropriations were requested and granted by the Congress February 24, 1881, in order to begin distribution of the new lamps in fiscal 1882. General Order 50 of May 24, 1881, transferred responsibility for the supply of lamps and fuel from the Subsistence to the Quartermaster Department and set forth regulations governing the distribution of lamps to officers and men.⁷

The transfer of the supply of lighting from the Subsistence to the Quartermaster Department suggests that, until 1881, it was the belief of the Army that while the men might require some illumination, barracks and hospitals did not. It can therefore be said that in a sense lighting was not part of the furniture of barracks until after that date.

The Quartermaster Department, as it had with iron bedsteads, footlockers, and chairs, accepted this new burden with bureaucratic grace. The new lamps, Meigs reported, would cost the Army about \$2,500 per year more than candles, but the cost was probably justified by the fact that each lamp gave off the light of 16 candles, to the benefit of the troops. "The men," he suggested, "being able to read without injury to their eyes, [will] spend more time in rational amusements and less time at the sutler store, at the grog-shops, and in the guardhouse."⁸

Perhaps he was correct. When it became known that, at long last, lamps would be provided in barracks, one enlisted soldier penned:

So if "fiat lux" the order is,
And candles are shown the door,
Round the bright kerosene
Twenty men will be seen,
To one at the trader's store.⁹

Notes

1. Risch, Quartermaster Support, 489; Foner, United States Soldier Between Wars, 18 (quotations).
2. General Order 58, 1869, and draft Commissary Department Circular dated Oct. 1869, in RAGO, Letters Received (Main Series, 1861-70), File 214 E 1868, Correspondence Relating to the Use of Oil for Illumination at Army Posts, 1868-77, NA microcopy M-619, Roll 621, RG92, cited hereafter as AGO Oil File.
3. "Memorandum as to use of Mineral Oil for illuminating purposes at Military Posts (1877)," AGO Oil File, RG94. Terminology, incidentally, is very confusing in the early history of this subject, because many terms that soon became generic, like "kerosene" and "coal-oil," were originally brand names.
4. Capt. A. McKenzie to Post Adjutant, Apr. 28, 1873, AGO Oil File, RG94. Astral Oil was made by the Oil House of Chas. Pratt, New York, and was a petroleum product with claims to safety. The AGO Oil File has a large number of the company's advertisements and technical claims along with those of many other fuel and lamp producers.
5. "Memorandum as to use of Mineral Oil . . . (1877)," AGO Oil File, RG94.
6. Ibid.
7. ARQMG 1881, 12-13, 225-26; Risch, Quartermaster Support, 489, summarizes the subject, as does Chappell, "Barracks Furnishings." The drawings and specifications for the lamps are not presented in this report because they did not come into being until after 1880.

8. ARQMG 1881, 12-13.

9. Quoted in Foner, United States Soldier Between Wars, 78.